Temporary Migration and Human Capital Investment in Origin Communities

Ghazala Mansuri

Building Migration into National Development Strategies

How is the opportunity to undertake temporary migration likely to affect private investments in human capital in origin communities?

- Release resource constraints and improve the risk bearing capacity of poor households, particularly in a rural context, where uninsured income risk is often high
  - Lower the opportunity cost of human capital investment
  - Reduce the opportunity cost of time spent by children in school
- But migration also affects household structure in ways that could enhance or dampen the resource impact at least for some types of investments
  - More time spent by children on household production & the care of younger siblings
  - Expectations of further migration could dampen incentives to invest in schooling if the returns to schooling in the migration destination are low.
  - Less supervision and mentoring of children
  - But…where males migrate, the emergence of female headed households could shift the balance of preferences in favor of higher investments in children, and in girls in particular.

Migration Patterns

- 1 in 4 adult males migrate from rural areas
- 40% of these are international migrants
- Most international migration is temporary and legal
- On average, migrants leave their communities thrice and stay away for a period of 5 years each time
- More than 2/3rds are married & have young children
- Over one-half send substantial remittances regularly
- Almost 15% of migrant households are female headed

Gender Gap in Schooling by Age

Figure 1:Enrollment Rates
by Age

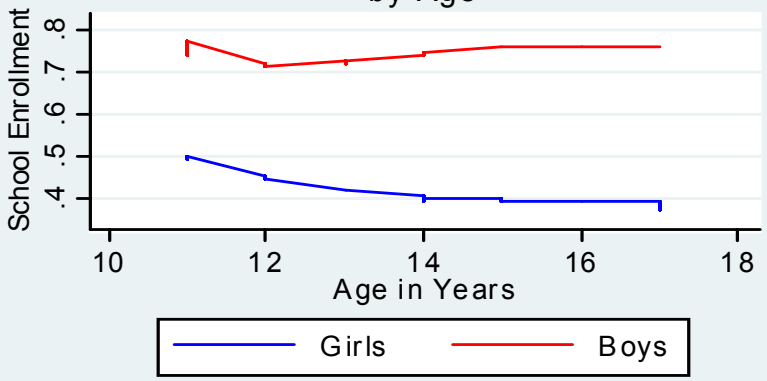


Figure 2:Dropout Rates
by Age

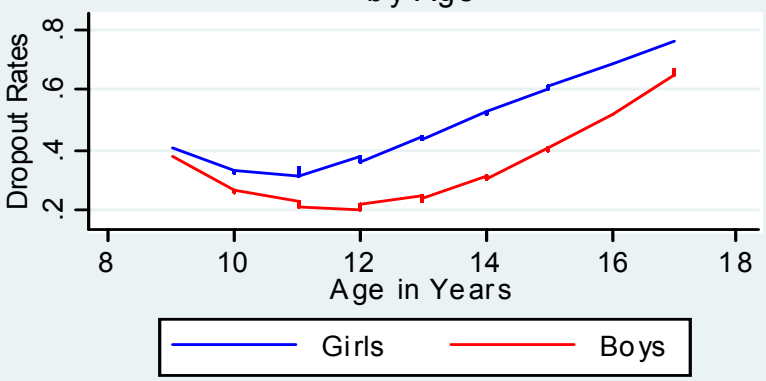
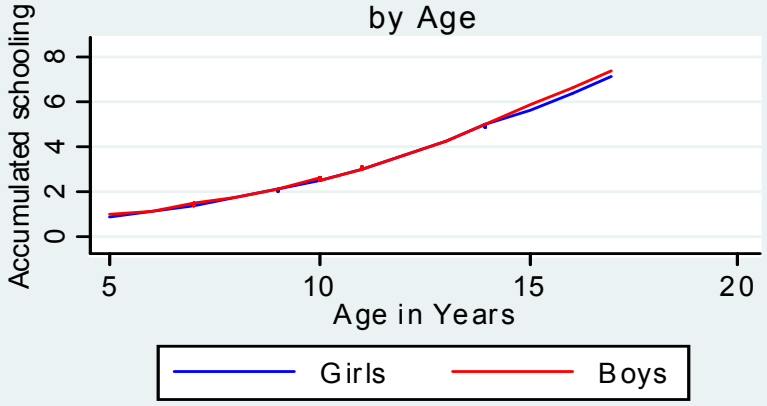


Figure 3:Completed Grades
by Age



Gender Gap in Schooling by Wealth

Figure 4:Enrollment Rates
by Wealth

Figure 5:Dropout Rates
by Wealth

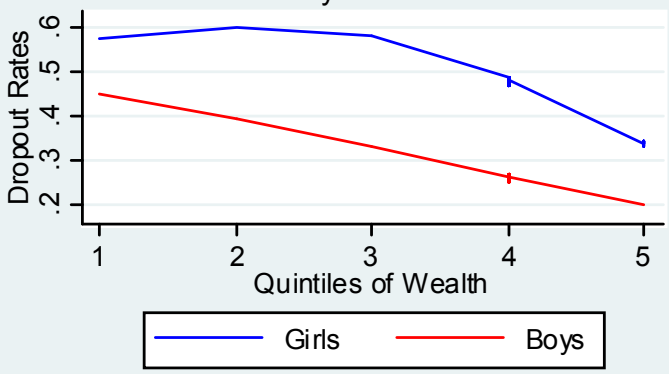
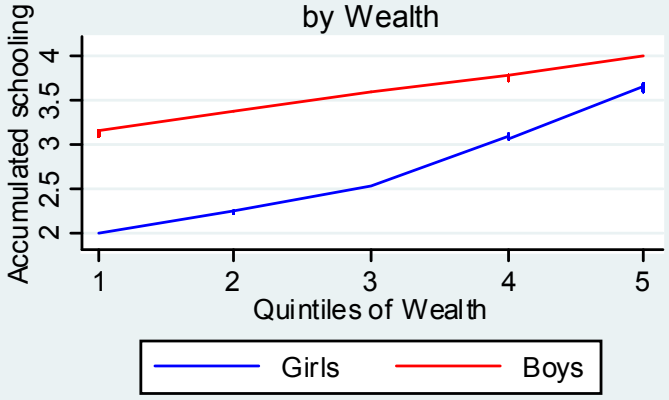


Figure 6:Completed Grades
by Wealth



Results - School attainment

- Migration effect is positive and significant for all three schooling outcomes
- Gender gaps in all schooling outcomes are much smaller

Enrollment

- The increase in enrollment closes the gap relative to 100% enrollment by 29% for girls, compared to 19% for boys.

Dropout rates

- The decrease in dropout rates closes the gap relative to 100% enrollment by 48% for girls, compared to 33% for boys

Completed grades

- Children in migrant households gain 1 full grade, on average
- Gains for girls much larger than for boys. The gender gap closes by .6 grades.

Results – Child Labor

- The number of children reporting some work declines significantly
- The number of days worked declines dramatically (from 32 days to 4 days)
- But .. there is no discernible gender difference
- Results with sibling comparisons are very similar

Does Female Headship Matter?

- Girls in female headed migrant households do much worse than in male headed migrant households.
  - Dropout rates more than double
  - Completed grades drop by 1.5 grades
  - Girls in female headed migrant households fare little better than girls in non-migrant households on most measures of school attainment
  -
- Boys do about as well or better in female headed households.
  - Dropout rates decline from .17 to .05
  - No effect on completed grades

- No difference in labor market activity. Children in both female headed and male headed migrants households work substantially less and there is no gender difference.

Conclusions

- Temporary male migration has a positive and extremely significant impact on child schooling
- Relative gains for girls outstrip those for boys by a good margin, resulting in a substantial net reduction in gender inequalities in access to education
- This suggests that, in a context where gender differences in educational attainment are large, temporary migration could substantially reduce gender inequalities in access to schooling with all its attendant societal benefits
- Migration also significantly reduces labor market participation by children
- Female headship is not the source of the migration effects we observe in our data-at least for girls. In fact, female headship appears to protect boys at the cost of girls.
- Similar results for investments in child health, but female headship makes no difference.

Table 1: School Enrollment Rates (Age 10-17)

	(1)	(2)[a]	(3)[a]	(4)	(5)[a]
	OLS	IV	IV	OLS	IV
Migrant Household	0.16***	0.33***	0.33***	0.08***	0.18*
	[0.03]	[0.08]	[0.09]	[0.02]	[0.10]
Migrant Household*Boy	-0.05	-0.13	-0.13	-0.05*	-0.12**
	[0.04]	[0.09]	[0.09]	[0.03]	[0.06]
Boy	0.31***	0.34***	0.34***	0.32***	0.34***
	[0.02]	[0.04]	[0.04]	[0.02]	[0.03]
Number of Adult Males			-0.01		
			[0.01]		
Test of IV relevance		674.75	650.1		159.7
Over-id. test χ_2 p-value					.10
Sample Size	4028	3971	3971	4028	3945
F for MHH (No. of inst.)		71.6 (2)	65.1		38.7 (4)
F for MHH*boy (No. of inst.)		45.2 (2)	48.5		160.8 (4)
Village Fixed Effects	No	No	No	Yes	Yes

Notes: Robust standard errors in brackets.
* significant at 10%; ** significant at 5%; *** significant at 1%.
The dependent variable is an indicator for whether the child has ever enrolled in school. The full set of controls is described in appendix table A3.
a: Migrant household endogenous. Instrument set: village migrant network in columns 2 and 3 and village migrant network and village land gini interacted with the number of adult males in the household in column 5. First stage on migrant household for specification 5 in Table 6.

Table 2: School Dropout Rates (Age 10-15)

	(1)	(2) [a]	(3)[a]	(4)	(5)[a]
	OLS	IV	IV	OLS	IV
Migrant Household	-0.11***	-0.19***	-0.18**	-0.08**	-0.26**
	[0.04]	[0.08]	[0.07]	[0.04]	[0.13]
Migrant Household*Boy	0.04	-0.03	-0.03	0.07	0.18**
	[0.05]	[0.10]	[0.10]	[0.04]	[0.09]
Boy	-0.21***	-0.19***	-0.19***	-0.26***	-0.30***
	[0.04]	[0.05]	[0.05]	[0.03]	[0.05]
Number of Adult Males			-0.02		
			[0.01]		
Test of IV relevance		315.7	301.1		77.6
Over-id. test χ_2 p-value					.71
Sample Size	1860	1840	1840	1861	1825
F for MHH (No. of instruments)		76.5 (2)	65.7 (2)		20.8 (4)
F for MHH*boy (No. of instruments)		66.9 (2)	70.1 (2)		73.9 (4)
Village Fixed Effects	No	No	No	Yes	Yes

Notes: Robust standard errors in brackets.
* significant at 10%; ** significant at 5%; *** significant at 1%.
The dependent variable is an indicator for whether the child has dropped out of school, conditional on having attended at some point. The full set of controls is described in appendix table A3.
a: Migrant household endogenous. Instrument set: village migrant network in columns 2 and 3 and village migrant network and village land gini interacted with the number of adult males in the household in column 5. First stage on migrant household for specification 5 in Table 6.

Table 3: Accumulated Years of Schooling

	(1)	(2) [a]	(3) [a]	(4)	(5) [a]	(6) [a]	(7) [a]	(8) [a b]	(9) [ac]
	Age 10-17					Age 10-13	Age 14-17	Age 10-17	Age 5-17
	OLS	IV	IV	OLS	IV	IV	IV	IV	IV
Migrant Hhold	0.49***	1.01***	0.96***	0.23*	1.12**	1.39**	1.28	1.18*	1.24**
	[0.15]	[0.36]	[0.37]	[0.12]	[0.51]	[0.64]	[0.91]	[0.62]	[0.49]
Migrant Hhold *Boy	-0.05	-0.55	-0.53	-0.08	-0.41	-1.08***	0.23	-0.99**	-1.33***
	[0.19]	[0.42]	[0.42]	[0.15]	[0.33]	[0.38]	[0.63]	[0.42]	[0.33]
Boy	1.20***	1.38***	1.37***	1.28***	1.47***	1.14***	1.87***	0.76***	0.82***
	[0.12]	[0.17]	[0.17]	[0.12]	[0.16]	[0.16]	[0.23]	[0.19]	[0.16]
Number of Adult Males			0.05						
			[0.05]						
Test of IV relevance		674.8	650.1		171.1	75.9	82.1	85.1	80.9
Over-id. test χ_2 p-value					.69	.39	.29	.72	.72
Sample Size	4028	3971	3971	4028	3945	2180	1764	2310	1923
F for MHH (No. of inst.)		71.6 (2)	65.1 (2)		41.2 (4)	17.7 (4)	21.9 (4)	23.3 (4)	22.0 (4)
F for MHH*boy (No. of inst.)		45.2 (2)	48.5 (2)		193.1 (4)	80.9 (4)	71.5 (4)	97.3 (4)	82.7 (4)
Village Fixed Effects	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors in brackets.
* significant at 10%; ** significant at 5%; *** significant at 1%.
The dependent variable is an the number of completed grades in the survey year. The full set of controls is described in appendix table A3.
a: Migrant household endogenous. Instrument set: village migrant network in columns 2 and 3 and village migrant network and village land gini interacted with the number of adult males in the household in columns 5-9. First stage on migrant household for specification 5 in Table 6.
b: conditional on having attended school
c: conditional on current enrollment

Table 4: Child Wage and Non-Wage Labor (Age 7-17)

	(1)	(2)[a]	(3)[a]	(4)	(5)[b]
	OLS	IV	IV	OLS	IV
Migrant Household	-0.06***	-0.26***	-0.25***	-0.04***	-0.20**
	[0.02]	[0.07]	[0.08]	[0.01]	[0.09]
Migrant Household*Boy	0.04**	0.08	0.07	0.04*	0.08**
	[0.02]	[0.07]	[0.07]	[0.02]	[0.04]
Boy	-0.02	-0.03	-0.03	-0.02	-0.03*
	[0.02]	[0.03]	[0.03]	[0.01]	[0.02]
Number of Adult Males			-0.01		
			[0.01]		
Test of IV relevance		823.8	800.1		102.1
Over-id. test χ_2 p-value					.11
Sample Size	5860	5768	5768	5860	5718
F for MHH (No. of inst.)		56.0 (2)	52.2 (2)		23.9 (4)
F for MHH*boy (No. of inst.)		31.9 (2)	33.5 (2)		267.4 (4)
Tehsil Fixed Effects	No	No	No	Yes	Yes

Notes: Robust standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%.

The dependent variable is an indicator for whether the child has done any work over the past year. It includes all wage labor as well as work on household production. The full set of controls is described in appendix table A3.

a: Migrant household endogenous . Instrument set: village migrant network in columns 2 and 3.

b: Instrument set *a* plus the village land gini interacted with the number of adult males in the household.

Table 6: A Comparison of Siblings in Migrant Households

	Schooling					Labor			
	Enrollment [a]		Dropout [a]	Completed Grades [b]		Any Work [c]		Days Worked [cd]	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Age Before Migration	-0.11**	-0.26***	0.17**	-0.54**	-1.44***	0.10**	0.38***	0.38***	0.93***
	[0.05]	[0.09]	[0.07]	[0.26]	[0.55]	[0.04]	[0.12]	[0.14]	[0.26]
Age Before Migration*Boy	0.10*	0.13**	-0.17**	0.15	0.44	-0.13***	-0.24***	-0.52***	-0.38*
	[0.06]	[0.07]	[0.08]	[0.34]	[0.39]	[0.05]	[0.07]	[0.18]	[0.21]
Boy	0.25***	0.27***	-0.15***	1.11***	1.12***	0.07***	0.21***	0.22**	0.31**
	[0.03]	[0.04]	[0.05]	[0.26]	[0.26]	[0.03]	[0.05]	[0.10]	[0.12]
Sample Size	875	875	761	875	875	947	947	947	947
Village Fixed Effects	Yes		Yes	Yes		Yes		Yes	
Household Fixed Effects		Yes			Yes		Yes		Yes
All Households		382			382		396		396
FE Households		120			139		112		112

Notes: Robust standard errors in brackets; significant at 10%; ** significant at 5%; *** significant at 1%.
The dependent variables are as described in tables 1-5. The full set of controls for specifications 1,3,4,6 and 8 are as described in appendix table A3. Specifications 2, 5, 7 and 9 include controls for child's age and age squared.

a Child was 9 years or older before first migration. Sample includes all children age 11-17.

b Child was 7 years or older before first migration. Sample includes all children age 11-17.

c Child was 9 years or older before first migration. Sample includes all children age 10-16.

d. log of days worked

Table 7: Child Schooling in Migrant Households. Does Female Headship Matter?

	Enrollment		Dropout Rates		Accumulated Grades-Age 11-17		Accumulated Grades-Age 5-17 (conditional on current enrollment)	
	(1)	(2) *a*	(3)	(4) *a*	(5)	(6) *a*	(7)	(8) *a*
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Female Headed HH	-0.02	0.21	-0.12	0.41**	0.21	-0.68	-0.24	-1.66***
	[0.06]	[0.29]	[0.09]	[0.19]	[0.34]	[1.60]	[0.31]	[0.63]
Female Headed HH* Boy	0.04	-0.05	0.09	-0.53**	-0.55	0.64	-0.17	1.67**
	[0.07]	[0.19]	[0.10]	[0.23]	[0.41]	[1.03]	[0.34]	[0.83]
Boy	0.24***	0.25***	-0.23***	-0.15***	1.28***	1.16***	0.11	-0.18
	[0.03]	[0.04]	[0.04]	[0.05]	[0.18]	[0.21]	[0.17]	[0.18]
Test of IV relevance		33.6		110.0		33.6		143.4
Sample Size	1196	1189	674	658	1196	1189	759	738
F for MHH (No. of inst.)		25.7(2)		60.6 (2)		17.2(2)		64.7(2)
F for MHH*boy (No. of inst.)		45.1(2)		61.4 (2)		67.9(2)		43.9 (2)
Village Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%.
The dependent variables are as described in tables 1-3. The full set of controls is described in appendix table A4.
a: Female head endogenous. Instrument set: Number of adult males in the household.

Table 8: Child Labor in Migrant Households. Does Female Headship Matter?

	Any Work (For Wages or Household Production)		Days Worked in Preceding Year	
	(1)	(2)[a]	(3)	(4)[a]
Female Headed HH	-0.03	0.23	-4.24	4.92
	[0.04]	[0.16]	[3.23]	[13.65]
Female Headed*Boy	0.02	-0.12	0.7	-5.43
	[0.05]	[0.12]	[4.03]	[10.07]
Boy	0	0.02	0.46	1.17
	[0.02]	[0.03]	[1.94]	[2.19]
Test of IV relevance		.18		.74
Over-id. test χ_2 p-value		672.9		672.9
Sample Size		1703		1703
F for MHH (No. of inst.)		175.0 (4)		175.0 (4)
F for MHH*boy (No. of inst.)		266.3 (4)		266.3 (4)
Village Fixed Effects	Yes	Yes	Yes	Yes

Notes: Robust standard errors in brackets; significant at 10%; ** significant at 5%; *** significant at 1%.
The dependent variables are as described in tables 4-5. The full set of controls is described in appendix table A4.
a: Female head endogenous. Instrument set: Number of adult males in the household.

Data

(1) Pakistan Rural Household Survey (PRHS) 2001-02

- 2531 households in 143 villages (16 districts)
- 7181 children age 5 to 17 (2126 households)
- 29% belong to migrant households
- Data on migrants includes information on the year and duration of migration, migration destination, remittances, and social networks

(2) Census listing of all households

–Migration

–Landownership

Child Labor

- There is data on four major categories of work:
  (Work on the family farm, agricultural wage work, work on a family enterprise or home based productive activity of any kind, non-farm wage work)
- There is also information on time spent on the care of livestock and fetching firewood and water.
- 18% of all children in the age group 7-17 report doing some work (29% if we include livestock etc.) and work between 1.5 full months per year (3 months if livestock care is included)
- There is a strong negative correlation between school attendance and hours of work
- No discernible gender differences in days worked

Gender Gaps in schooling are large

- Enrollment: 31% gap (73% of boys and 42% of girls ever enrolled in school)
- Retention: Among enrolled children, girls were almost twice as likely to dropout as boys
- Completed Grades: Among currently enrolled children, boys have and additional .5 grades more, on average

- 18% of all children age 7-17 report work. If livestock care and other domestic chores are included, 29% report work (work for 2-3 full months per year)
- -no difference by gender

Empirical Strategy

Estimate

$$S_{ijv} = \beta_1 M_{ijv} + \beta_2 B_{ijv} + \beta_3 B_{ijv} M_{ijv} + \gamma_1 C_{ijv} + \gamma_2 X_{jv} + \eta_{jv} + e_{ijv}$$

(1) Instrument for migration

Use the migration prevalence rate within landholding groups in each village (VMN_v), interacted with the number of adult males in the household (NAM_i)

(2) Compare educational outcomes for siblings

Use the child's birth year and the year the first migrant left the household to divide siblings into two groups: those who were 9 or older before the first migration episode-and those who turned 9 after the first migration episode